

- 54 -

CLAIMS

1. An isolated compound which is a ligand of or otherwise interacts with a protein which comprises an amino acid sequence as set forth in SEQ ID NO:2 or an amino acid sequence having at least about 40% similarity thereto.
2. The isolated compound of Claim 1 wherein the protein is encoded by a nucleic acid molecule which comprises a nucleotide sequence as set forth in SEQ ID NO:1 or a nucleotide sequence having at least about 40% identity thereto or a nucleotide sequence capable of hybridizing to SEQ ID NO:1 or its complementary form under low stringency conditions.
3. The isolated compound of Claim 2 wherein the compound is a ligand of FIT defined by amino acid sequence SEQ ID NO: 2.
4. The isolated compound of Claim 2 wherein the compound is a ligand of FIT defined by an amino acid sequence encoded by *FIT* defined by nucleotide sequence SEQ ID NO:1.
5. The isolated compound of Claim 1 or 2 or 3 or 4 wherein the compound is a peptide, polypeptide or protein or a chemical analog, mimetic or homolog thereof.
6. The isolated compound of Claim 1 or 2 or 3 or 4 wherein the compound is a chemical molecule.
7. The isolated compound of Claim 1 or 2 or 3 or 4 wherein the compound is a soluble receptor for FIT.

- 55 -

8. The isolated compound of Claim 1 or 2 or 3 or 4 wherein the compound is selected from endophilin 3, endophilin 1, β -arrestin 1, β -arrestin 2, the α -1 subunit of the AP2 complex, the α -2 subunit of the AP2 complex and a homolog, derivative or mimetic thereof.
9. An agonist or antagonist of the isolated compound of any one of Claims 1 to 8.
10. A method of identifying a ligand of the protein FIT or its derivatives, said method comprising introducing a first genetic construct in a yeast strain, said genetic construct comprising a nucleotide sequence encoding all or part of FIT fused to a nucleotide sequence encoding one of a DNA binding (DB) domain or an activation domain (AD) and introducing a second genetic construct into said yeast comprising a cDNA, said second genetic construct comprising elements of a cDNA library fused to a nucleotide sequence encoding the other of a DB domain or AD domain and selecting yeast cells which comprise both genetic constructs and in which a reporter gene has been subjected to two-hybrid dependent transcription.
11. The method of Claim 10 wherein the yeast reporter gene is *HIS3*.
12. A method for modulating expression of genetic material encoding a FIT ligand, such as endophilin 3 and endophilin 1, β -arrestin 1 and 2 and the α -1 and α -2 subunits of the AP2 complex or homologs or derivatives thereof, in a mammal, said method comprising contacting the *FIT* ligand gene the material with an effective amount of a modulator of the expression of the FIT ligand genetic material for a time and under conditions sufficient to up-regulate or down-regulate or otherwise modulate expression of the FIT ligand genetic material.
13. A method of modulating activity of FIT in a mammal, said method comprising administering to said mammal a modulating effective amount of a soluble FIT ligand or a derivative thereof or an antagonist or agonist of FIT-ligand interaction for a time and under conditions sufficient to increase or decrease FIT activity or levels.

- 56 -

14. A method of treating a mammal suffering from a condition characterized by one or more symptoms of an unhealthy state, including the presence or absence of a disorder associated with obesity, anorexia, weight maintenance, inflammation, diabetes, and/or metabolic energy levels comprising administering to said mammal an effective amount of an agent for a time and under conditions sufficient to modulate the activity of FIT or the interaction between FIT and a FIT ligand.
15. A composition comprising a FIT ligand or a soluble form of a FIT ligand, such as endophilin 3 and endophilin 1, β -arrestin 1 and 2 and the α -1 and α -2 subunits of the AP2 complex or a modulator of a gene expression of a FIT ligand, or an antagonist or agonist of FIT-ligand interaction and one or more pharmaceutically acceptable carriers and/or diluents.
16. Use of a compound which is a ligand of or otherwise interacts with a protein which comprises an amino acid sequence as set forth in SEQ ID NO:2 or an amino acid sequence having at least about 40% similarity thereto in the manufacture of a medicament for the treatment of obesity, anorexia, weight maintenance, inflammation and/or metabolic energy levels.
17. Use of Claim 16 wherein the protein is encoded by a nucleic acid molecule which comprises a nucleotide sequence as set forth in SEQ ID NO:1 or a nucleotide sequence having at least about 40% identity thereto or a nucleotide sequence capable of hybridizing to SEQ ID NO:1 or its complementary form under low stringency conditions.
18. Use of Claim 17 wherein the compound is a ligand of FIT defined by amino acid SEQ ID NO:2.
19. Use of Claim 17 wherein the compound is a ligand of FIT defined by an amino acid sequence encoded by *FIT* defined by nucleotide sequence SEQ ID NO:1.

- 57 -

20. Use of Claim 17 wherein the isolated compound of Claim 1 or 2 or 3 or 4 wherein the compound is a peptide, polypeptide or protein or a chemical analog, mimetic or homolog thereof.
21. Use of Claim 17 wherein the isolated compound of Claim 1 or 2 or 3 or 4 wherein the compound is a chemical molecule.
22. Use of Claim 17 wherein the isolated compound of Claim 1 or 2 or 3 or 4 wherein the compound is a soluble receptor for FIT.
23. Use of Claim 17 wherein the isolated compound of Claim 1 or 2 or 3 or 4 wherein the compound is selected from endophilin 3, endophilin 1, β -arrestin 1, β -arrestin 2, the α -1 subunit of the AP2 complex, the α -2 subunit of the AP2 complex and a homolog, derivative or mimetic thereof.